Botany 322 Final Exam Study Guide

**Classification of Plants**

* Taxonomy and Classification
  + Kingdom, phylum, class, order, family, genus, species
* Leaf Anatomy and ID
  + Leaf Features:
    - Simple
    - Pinnate (once and twice)
    - Palmate Compound
    - Leaf Shape
      * Circular, elliptical, heart, ovate, lance, needles
    - Leaf Margins
      * Smooth, wavy, serrate, doubly serrate, lobed
    - Leaf Arrangement
      * Opposite, alternate, whorled
* Using a dichotomous key to ID plant species

**Ferns**

* Life cycle
  + Haploid/diploid: alternation of generations
    - Sporophyte dominant
  + How fertilization occurs
  + When the zygote forms
  + Sporophyte
  + Gametophyte
  + Antheridium
  + Rhizoids
* Identify parts of a fern
  + Sori
  + Fiddlehead
  + Archegonium
  + Spores
* Vascular Plants vs. Nonvascular Plants

**Mosses**

* How moss life is similar and different from fern life cycle
  + Gametophyte dominant
  + Antheridium
  + Rhizoids
  + Capsule
  + Stalk
* Identify parts of a moss plant
  + Gametophyte
  + Sporophyte
  + Archegonium

**Tree ID**

* White Pine vs. Red Pine
* American Beech
* Hemlock
* White Oak vs. Red Oak
* Spruce
* Cedar
* Rhododendron
* Mountain Laurel

**Plant Pigments**

* Chromatography
  + Chlorophyll (green), carotenoid (yellow-orange), anthocyanin (pink-red)
  + Why the leaves change colors?
  + Why the leaves fall off the trees?
* Photosynthesis: Chloroplasts
  + Structure of chloroplast
    - Thylakoids: function
    - Chlorophyll
    - Grana

**Plant Structure**

* Roots
  + Taproot vs. Fibrous root
  + Shoots
    - Nodes, Internodes & Buds
* Leaves
  + Mesophyll
  + Petiole
  + Blade
  + Stomata
  + Guard Cells
  + Epidermis
  + Cuticle
* Vascular Structure
  + Xylem
  + Phloem
  + Transpiration (xylem)
  + Osmosis (phloem)
  + Vascular Structure of Monocots vs. Dicots
  + Primary growth
  + Secondary growth

**Seeds & Flowers**

* Monocot vs. Dicot Seed characteristics
  + Examples of each
* Endosperm
* Cotyledon
* Embryo
  + Plumule
  + Radicle
* How does a seed obtain nutrients?
* Male and Female Parts of a Plant
  + Stigma
  + Petals
  + Filament
  + Ovary
  + Stamen
  + Style
  + Sepals
  + Anther

**Fruit**

* Different Types of Fruit (characteristics and 1 example)
  + Hesperidium
  + Drupe
  + Berry
  + Aggregate
  + Pome
  + Achene
  + Pod
  + Pepo
* Ovules
* Pericarp
* Receptacle
* Locule

**Tropism**

* Hormones
  + Auxin
* Thigmotropism
* Gravitropism (geotropism)
  + Tropic Responses
    - Phototropism